ISTEP+: Grade 4

Mathematics

Parent Guide to ISTEP+ Scoring

Introduction

Indiana students in Grades 3-8 participated in the *ISTEP+* Spring 2014 administration. The test for *ISTEP+* in Spring 2014 consisted of an Applied Skills section administered in March and a Multiple-Choice section administered in late April and early May. For all grades, the Applied Skills section of the assessment was handscored by trained evaluators. The Multiple-Choice section was machine-scored. Scores for the Applied Skills and Multiple-Choice sections are combined to generate a student's total score.

Test results for both the Multiple-Choice and Applied Skills sections, as well as images of the Applied Skills student responses, are available online. It is the expectation of the Indiana Department of Education that schools will take this opportunity to have a conversation with parents and students about the results. As a springboard for this conversation, the Indiana Department of Education has created this document which outlines the released Applied Skills questions and includes brief scoring notes that describe the given score points and explain the scoring rules and expectations for the individual questions.

This document consists of:
- a brief description of the types of questions assessed
- a short summary of scoring rules utilized by the trained evaluators
- access to rubrics used to score student responses
- a copy of the released Applied Skills questions
- anchor papers used by evaluators to distinguish between rubric scores

NOTE: The Applied Skills operational questions are released at the end of each test administration. It is important to keep in mind that a significant portion of a student's score is calculated from the Multiple-Choice section of the assessment, which is not addressed within this document.

QUESTION TYPES

This document addresses the Applied Skills section of *ISTEP+*, which allows students to demonstrate their understanding of content in a variety of ways. The Applied Skills Assessment consists of constructed-response (CR) and extended-response (ER) questions. CR and ER questions are cognitively more demanding than multiple-choice (MC) questions. ER questions are typically more complex and will likely require more steps to respond.

SCORING

For the Applied Skills Assessment, each question is scored according to a rubric. Rubrics clearly define the requirements for each score point. Each student response is evaluated individually to determine whether it is acceptable. This allows student scores to be reported as accurately as possible. To ensure consistency when scoring the *ISTEP+* questions, CTB/McGraw-Hill works closely with assessment specialists at the Indiana Department of Education and teacher committees to set guidelines for scoring student responses. Committees look at several student papers and score them using the rubrics. Some of the student responses are selected as anchor papers and are used as clear examples of specific score points. Samples of anchor papers are presented within this document. Scoring supervisors then use anchor papers and approved, scored student responses to ensure that responses are evaluated appropriately and consistently. Individuals who evaluate and score *ISTEP+* student responses must have a four-year college degree and pass a series of qualifying tests on specific questions before they can evaluate any student responses.

If a response is unscorable, it is assigned one of the following condition codes:

A Blank/No Response/Refusal
B Illegible
C Written predominantly in a language other than English
D Insufficient response/Copied from text

For additional information regarding *ISTEP+* or other student assessments, please contact the Indiana Department of Education by calling 317-232-9050 or writing via email: istep@doe.in.gov.

The chart below summarizes the question types used to measure a student's mastery of content, the assessment that contains the particular question type, the standards assessed in each assessment, and the scoring method used to evaluate a student's response given the question type.

Scoring Note: All student responses to questions found in each Applied Skills Assessment are handscored using the specific rubric(s) outlined in the column labeled "Scoring Method." As indicated in the chart, all multiple-choice questions are machine scored.

Question Type	Assessment	Standards Assessed	Scoring Method
Constructed-Response (CR)	Applied Skills Assessment	1,2,4,5,7	4-pt. CR Rubric (2-pts. Content and 2-pts. Problem Solving)
Extended-Response (ER)	Applied Skills Assessment	1,2,4,5,7	6-pt. ER Rubric (3-pts. Content and 3-pts. Problem Solving)
Multiple-Choice (MC)	Multiple-Choice Assessment	All	Machine-Scored

More information is available regarding these assessment topics on the Office of Student Assessment homepage at http://www.doe.in.gov/assessment.

Constructed-Response Rubric

	Content Rubric
2	A score of two indicates a **thorough understanding** of the mathematical concepts embodied in the task. The response • shows algorithms, computations, and other content related work executed correctly and completely.
1	A score of one indicates a **partial understanding** of the mathematical concepts embodied in the task. The response • contains errors in the execution of algorithms, computations, and/or other content related work.
0	A score of zero indicates **limited or no understanding** of the mathematical concepts embodied in the task.
	Problem-Solving Rubric
2	A score of two indicates a **thorough understanding** of the problem-solving concepts embodied in the task. The response • shows an appropriate strategy to solve the problem, and the strategy is executed correctly and completely. • identifies all important elements of the problem and shows a complete understanding of the relationships among them. • provides clear and complete explanations and/or interpretations when required.
1	A score of one indicates a **partial understanding** of the problem-solving concepts embodied in the task. The response contains one or more of the following errors. The response • shows an appropriate strategy to solve the problem. However, the execution of the strategy contains errors and/or is incomplete. • identifies some of the important elements of the problem and shows a general understanding of the relationships among them. • provides incomplete, partial, or unclear explanations and/or interpretations when required.
0	A score of zero indicates **limited or no understanding** of the problem-solving concepts embodied in the task.

Clarification and Implementation Guidance

- Correct answers ONLY, on all parts of the problem with no work shown, will receive a maximum of 1 point in content and a maximum of 1 point in Problem Solving.

- A student can receive the top score point in Problem Solving if the strategy used would result in a correct answer even though the response contains computation errors.

- A student can receive the top score point in Problem Solving if an error made in the "content" portion is used with an appropriate strategy to solve the problem.

Extended-Response Rubric

|	Content Rubric
3	A score of three indicates a **thorough understanding** of the mathematical concepts embodied in the task. The response • shows algorithms, computations, and other content related work executed correctly and completely.
2	A score of two indicates a **partial understanding** of the mathematical concepts embodied in the task. The response • shows an attempt to execute algorithms, computations, and other content related work correctly and completely; computation errors or other minor errors in the content related work may be present.
1	A score of one indicates a **limited understanding** of the mathematical concepts embodied in the task. The response • contains major errors, or only a partial process. • contains algorithms, computations, and other content related work which may only be partially correct.
0	A score of zero indicates **no understanding** of the mathematical concepts embodied in the task.
	Problem-Solving Rubric
3	A score of three indicates a **thorough understanding** of the problem-solving concepts embodied in the task. The response • shows an appropriate strategy to solve the problem, and the strategy is executed correctly and completely. • identifies all important elements of the problem and shows a complete understanding of the relationships among them. • provides clear and complete explanations and/or interpretations when required.
2	A score of two indicates a **partial understanding** of the problem-solving concepts embodied in the task. The response contains one or more of the following errors. The response • shows an appropriate strategy to solve the problem. However, the execution of the strategy lacks an essential element. • identifies some of the important elements of the problem and shows a general understanding of the relationships among them. • provides incomplete or unclear explanations and/or interpretations when required.
1	A score of one indicates a **limited understanding** of the problem-solving concepts embodied in the task. The response contains one or more of the following errors. The response • shows an appropriate strategy to solve the problem. However, the execution of the strategy is applied incorrectly and/or is incomplete. • shows a limited understanding of the relationships among the elements of the problem. • provides incomplete, unclear, or omitted explanations and/or interpretations when required.
0	A score of zero indicates **no understanding** of the problem-solving concepts embodied in the task.

Clarification and Implementation Guidance

- Correct answers ONLY, on all parts of the problem with no work shown, will receive a maximum of 2 points in content and a maximum of 2 points in Problem Solving.
- A student can receive the top score point in Problem Solving if the strategy used would result in a correct answer even though the response contains computation errors.
- A student can receive the top score point in Problem Solving if an error made in the "content" portion is used with an appropriate strategy to solve the problem.

Question 1

Daniel is building a model of a small city on a rectangular tabletop. A diagram of the tabletop is shown below.

7 feet

8 feet
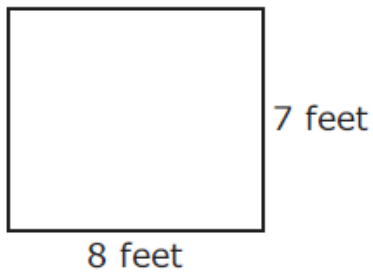
Daniel plans on putting a wood border around the perimeter of the tabletop. The height of the table is 3 feet.

If he has 20 feet of wood for the border, how much MORE wood, in feet, will he need?

Show All Work

Answer _____ feet

What information is NOT needed to solve the problem?

_____

_____

Exemplary Response:

- 10 feet

- Sample Process:
    - Perimeter $= 2l + 2w$
    - $7 + 7 + 8 + 8 = 30$
    - $30 - 20 = 10$

  OR
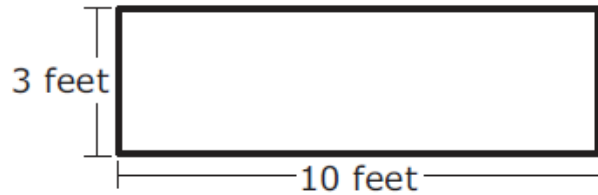   - Other valid process

AND

- The height of the table

OR

- Other valid process

Question 2

The diagram below shows one of the banners 3 friends are making for the school teams.

3 feet

10 feet

The 3 friends EACH make 2 banners.

What is the total area, in square feet, of ALL the banners?

Area of rectangle = lw
                  = length $\times$ width

Show All Work

Answer _____ square feet

Exemplary Response:

- 180 square feet
- Sample Process
    - A = 10 x 3 = 30 square feet for one banner
    - 3 friends x 2 banners = 6 banners
    - 30 x 6 = 180 square feet

    OR
    - Other valid process

Question 3

On Monday, 64 students went on a field trip to an art museum. At the museum, they were divided into 4 equal groups.

How many students were in each group?

Show All Work

Answer _____ students

The students in one of the groups each made 6 bookmarks to share equally among the 4 kindergarten classes at their school. There are 28 students in each kindergarten class.

On the lines below, use words, pictures, or numbers to explain whether the students made enough bookmarks for each kindergarten student to receive one bookmark.

_____

_____

_____

_____

Exemplary Response:

- 16 students
- Sample Process
    - 64 / 4 = 16
    OR
    - Other valid process
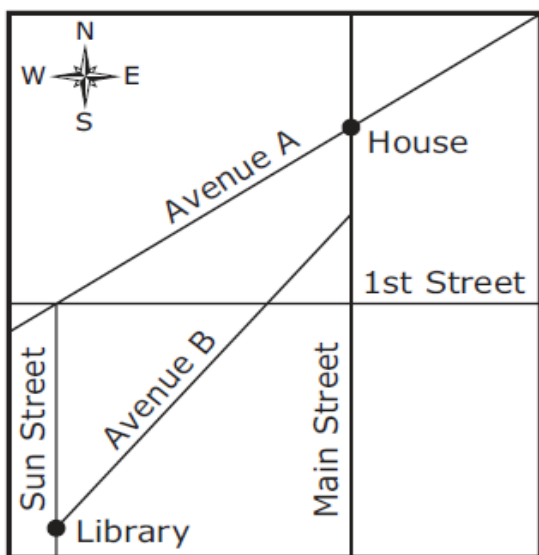
AND

- No, because 19 times 6 is 96 total bookmarks. 4 x 28 = 112 total kindergarten students, which is more than 96 bookmarks.
  OR
- Other valid response

Extended-Response
Standard 5: Measurement
Standard 7: Problem Solving

Question 4

On the map below, 1st Street is perpendicular to both Sun Street and Main Street.

Mike walks from his house to the library. To get there, he first walks southwest down Avenue A and then turns south onto Sun Street. What type of angle is made by this turn on the map?

Answer _____ angle

On the lines below, describe a path Mike could walk home from the library to his house that would include ONLY right angles.

_____

_____

_____

_____

Name two streets that make two obtuse angles and two acute angles when they cross each other.

Answer _____

_____

Exemplary Response:

- Obtuse angle

AND

- Mike could walk up Sun Street, turn right on 1st Street, and turn left on Main Street.
  OR
- Other valid response

AND

- Avenue A and Main Street
  OR
- Avenue B and 1st Street
  OR
- Avenue A and 1st Street